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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/463,560	03/21/2000	NIGEL LAMBERT	TPP30852	6480

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EXAMINER
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ART UNIT	PAPER NUMBER
1762	12

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Please find below and/or attached an Office communication concerning this application or proceeding.

SB

Office Action Summary

Application No.	Applicant(s)
09/463,560	Lambert et al
Examiner	**Group Art Unit**
M.L. Padgett	1762

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☒ Responsive to communication(s) filed on 10/22/01 & 9/28/01.

☒ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1-23 is/are pending in the application.

Of the above claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-23 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

☐ All ☐ Some* ☐ None of the:

☐ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. _____.

☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____.

Attachment(s)

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 11

☐ Interview Summary, PTO-413

☐ Notice of Reference(s) Cited, PTO-892

☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Other _____

Office Action Summary

1. Claims 1-23 are objected to or rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Requiring "at least a reactive part comprising...multi-functional material having a functionality of at least three" is confusing as it remains unclear as claimed if the multifunctional which is referred to in claims 6, 7 and 8 as possibly being multiple species, modifies each species or can be taken as the group of species having multiple functionalities. Also, "a functionality" of what? This amendment does not clarify the issue. In other words, can each of several reactive diluents have different functionality, hence be multifunctional overall, or must each diluent have at least 3 groups? Does the weight percentage refer to the weight of ligands in the composition, the weight of compounds that have ligands or functional groups, or what? Is it necessary for there to be 3 different types of functionalities or (?) functional groups or just that some of the molecules of the composition must have at least 3 of any type of "functionality" (functional group ?), but that they may all be identical?

The double article "the said" in claim 4 is objected to as redundant.

At the end of claim 1 "a solvent resistant coating" is vague and indefinite, as what solvent is being referred to is unknown or relative. Almost, all solid substances are resistant to dissolution by some solvent, but not by others so this amendment has little significant meaning. It is noted that Ex. 1 refers to solvent resistance, but is only relevant with respect to the solvent acetone, not generally as claimed.

With respect to new claim 23, since an "inert gas" by definition is not oxygen, it is impossible for the inert gas to subject any free radical to oxygen quenching, hence claim 23 merely states an inherent fact. As written it is unclear what if anything claim 23 adds to the process.

Claim 3 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Nitrogen is a group VA element, not an inert gas which are in the last column of the periodic table. Alternately, use of relative terms, that lack clear metes and bounds in the claims, or in a clear definition in the specification or relevant prior art, is vague and indefinite, i.e. in claims 1 and 2 the gas is inert with respect to what? N_2 reacts with quite a number of substances; so "inert" is relative. Applicants' claims do not claim that the gas is inert with respect to any particular chemicals or reactions, hence their explanation is insufficient. Page 9 cited by applicant has no mention of nitrogen, so is irrelevant to this issue.

However, the paragraph bridging pg, 6-7 would appear to provide support for rephrasing to define that inert gases referring to the compounds of the inert atmosphere, are not reactive with the coating, hence include nitrogen.

2. Claim ~~23 is~~ S1-23are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one

skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

While the phrase "solvent resistant" is used with respect to the coating in the specification, no support for the claim of general or unspecified solvent resistance is found, only teachings for resistance to specifically mentioned solvents, such as ~~action~~ acetone on pg. 10. Therefore, as presently claimed this amendment contains New Matter.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-23 rejected under 35 U.S.C. 103(a) as being unpatentable over Moussa et al alone, or especially in view of Jonssen et al.

Moussa et al teach photo-crosslinking in UV-light without the need of a photo-initiator, and employing a monoacyrlic reactive diluent, or poly(meth)acrylate reactive diluent (col. 5, lines 21-29+ and col. 6, lines 12-16; abstract). Note that the mono(meth)acrylic carbonates, refer to formula I shown on col.4 which has four functionalities, i.e. functional groups in the compound, reading on a possible meaning of the claims. In the background, it is further disclose that polyfunctional acrylates enable the reactivity to be increased in comparison with use of monofunctional acrylate. See col.2, lines 3-8. However, it is also disclosed that the use of polyfunctional acrylate results in a residual unsaturated content, which is markedly higher after

crosslinking. This results in a less satisfactory behavior of the coating towards light during ageing, in that yellows rapidly with possible losses of mechanical properties (col. 3, lines 10-17), but such prior art cautions are not relevant in view of the claims as written; and Moussa et al's explicit use. In examples 32-35 (col. 14-15) a comparison of UV cure under air (Ex. 33 and 35) and under an inert N_2 atmosphere (Ex. 32 & 34) is made, where a carbonate reactive diluent is employed, plus diacrylic polyurethane, and NO photoinitiator. Determining the weight percentages, without clear knowledge as to what they refer to is not meaningful. Moussa et al teach that the polymerization under N_2 was faster than under air (col. 5, lines 15-8), suggesting that minimizing oxygen concentration, a known polymerization inhibiter, was desirable, hence obvious. It is also suggestive that curing would result in less unsaturation when done in the inert atmosphere. Moussa et al discusses insoluble content, therefore solvent resistance.

This set of examples does not teach the parameters of the UV lamps employed, or other dependent limitations, however col.4, lines 21-38+ list various multifunction croslinkable compounds, including poly(meth)acrylic oligomer with average molecular weights between 500-5000; col. 6, lines 37-50 mention UV lamps, use of additives such as surfactants, gloss adjusting agents, fillers and colorants, which would have been suggestive of the claimed clay, silica and magnetizable particles. In the first coating examples (5-14) on col. 8, lines 29-44, Hg medium pressure vapor lamps, having a spectral window from 250-400 nm, with 700 W power and an irradiance of 14.6×10^{-2} W/cm^2 were used. Neither of these measurements are directly comparable to applicants' claimed "at least 140 watts per linear" centimeter, because the length of

the lamps employed is undefined for both Moussa et al and applicant's claims. In Ex. 27-31, which the inert N_2 atmosphere examples 32 and 34 refer back to, the medium pressure Hg lamp used 2,000 W power and 52.5 x 10^{-2} W/cm^2. Moussa et al does not have a general teaching concerning dosage, therefore one of ordinary skill in the art, while using the area irradiance as a guide line, would use routine experimentation to optimize UV fluence or dosage in curing. Alternately, especially considering known trends of faster curing rates at higher intensities (fig.3-4; col.9, line 35-col.10, line 38), as shown by Jonsson et al who polymerizes without photoinitiators, with a bulb whose major output is in the same general spectral region (fig. 5) as taught by Moussa et al of 250 to 400 nm. The trends would have been expected in general, but with parameters optimized for particular compositions, and particular lamps, whose spectra will vary. Choice of a particular range or set of wavelength peaks for a composition with no particular functional groups or resins (claim 1), has very little significance, as it can provide no provide no particular effect, to unspecified compositional components.

5. Applicant's arguments filed 9/28/01 and discussed above have been fully considered but they are not persuasive.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication should be directed to M.L. Padgett at telephone number (703) 308-2336 on M-F from about 8 am - 4:30 pm, and FAX # (703) 872-9311 (after final official), or 305-6078 (unofficial).

Examiner Padgett/ng

02/12/02

02/07/02

MARIANNE PADGETT
PRIMARY EXAMINER
GROUP 1700